

## **Remarks**

### **I. Status and Nature of the Amendments**

Claims 2-11 are pending, claim 1 having been canceled without prejudice or disclaimer to its reintroduction in this application or introduction into a future continuation or divisional application.

Applicants have amended the claims to change the dependency of claim 4 in view of the cancellation of claim 1. No new matter has been added by this amendment. New claim 5 is identical to claim 4, with the exception of its dependency from claim 2. New claims 6 to 8 depend from claim 2, and are supported in the specification at, for example, page 4, lines 1-18. New claims 9 to 11 depend from claim 3, and also are supported in the specification at, for example, page 4, lines 1-18. Approval and entry of the claim amendments and new claims are respectfully requested.

### **II. Claims Rejections -- 35 U.S.C. § 103**

Claims 1 to 4 have been rejected under 35 U.S.C. § 103(a) (hereinafter "Section 103") as being unpatentable over U.S. Patent No. 6,592,810 to Nishida et al. (hereinafter "Nishida")

Applicant respectfully traverses this rejection as it applies to claims 2 to 4. The rejection of claim 1 has been rendered moot.

The present invention as defined in claim 2 relates to a Fe-Ni-Co alloy thin strip for shadow masks especially useful in flat screen. As described at page 2 of the specification, larger size flat screens encounter a phenomenon by which an electron beam deviates from its normal orbit due to an external magnetic field. This "magnetic drift" is especially prevalent at the edge portion of a screen. Thus, there has been a demand for shadow masks having excellent magnetic properties. (Specification, page 3, lines 17-18)

The Fe-Ni-Co alloy thin strip of the present invention comprises a composition providing both high strength and excellent magnetic properties. The composition of

claim 2 comprises, on a mass basis, 30 to 35% Ni, 2 to 6% Co, 0.1 to 0.4% Nb, 0.2 to 0.5% Mn, and the rest Fe and unavoidable impurities, wherein the unavoidable impurities comprises 0.005% or less C, 0.002% or less S and 0.005% or less N and precipitates and inclusions are 0.2  $\mu\text{m}$  to 5  $\mu\text{m}$  in size and the total mass of them is 0.5  $\mu\text{g}/\text{mm}^3$  to 1.5  $\mu\text{g}/\text{mm}^3$ . Claim 3 adds that the grain size before etching is 7 to 10. These constituents, sizes, and concentrations were selected in combination to provide improved magnetic properties without decreasing the strength of the alloy. (See specification, page 4, lines 19-24)

In the Office Action, the Examiner asserts Nishida against the pending claims of this application. In fashioning the rejection, the Examiner dismisses the shortcomings of Nishida vis-à-vis the claims as obvious, alleging *inter alia* the following:

[I]t would [have been] obvious to one of ordinary skill in the art to select the claimed wt% ranges from the broader disclosure of the prior art since the prior art has the same utility (shadow mask) with similar properties (high strength and low thermal expansion). See MPEP 2144.05.

(Office Action, page 2)

Applicant respectfully disagrees.

As stated in MPEP 2144.05 cited by the Examiner, a *prima facie* case of obviousness based on overlapping ranges may be rebutted by showing the criticality of the claimed range. "The law is replete with cases in which the differences between the claimed invention and the prior art is some range or other variable within the claims." MPEP 2144.05 (citing *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)).

Applicant first points out that the overlap between certain claim ranges and the prior art is minimal at best. Nishida discloses a Nb content of 0.1% *or less* of fine grain size. In contrast, the claimed invention recites a composition comprising 0.1 to 0.4% Nb inclusions of 0.2  $\mu\text{m}$  to 5  $\mu\text{m}$  in size. Additionally, Nishida selects an average grain size *not less than* 10, whereas claim 3 of the present application recites grain sizes of 7 to 10.

Applicant respectfully submits that the claimed features were selected in order to provide the claimed alloy thin strip with excellent magnetic properties. Nishida, on the other hand, does not mention magnetic properties. Nishida teaches manipulating its composition to improve strength and reduce thermal expansion coefficient. (Col. 2, lines 54-57)

A particular parameter must first be recognized as a result-effective variable, *i.e.*, a variable which achieves a recognized result, before the determination of the optimum or workable ranges of the variable might be characterized as obvious. MPEP § 2144.05; *see also In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Here, Nishida fails to teach the particular problem of magnetic drift addressed by the invention. Nishida further fails to teach motivation for solving this particular problem of magnetic drift through the manipulation of the claimed features. To the extent that Nishida recognizes Nb content and average grain size as result-effective variables, Nishida does so with respect to a different result, *i.e.*, strength and thermal expansion coefficient. Further, Nishida teaches that these variables are optimized by moving away from the claimed ranges, *i.e.*, a Nb content of 0.1% *or less* and a grain size of *not less than* 10.

In view of Nishida's deficiencies and its dearth of disclosures with respect to magnetic drift and result-effective variables for addressing this particular problem, Applicant respectfully submits that the rejection of claims 2 and 3, and claims 4 and 5 which depend therefrom, is misplaced. Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim 1 has been rejected under Section 103 as being unpatentable over U.S. Patent Application Publication No. 2002/0117241 to Etoh.

Applicant respectfully submits that the cancellation of claim 1 has rendered this rejection moot. Accordingly, Applicant respectfully requests withdrawal of this rejection.

Claims 1 and 4 have been rejected under Section 103(a) as being unpatentable over the English abstract of DE 3636815.

Applicant respectfully submits that this rejection has been rendered moot by the cancellation of claim 1 and the amendment of claim 4 to depend from claims 2 and 3 only. Accordingly, withdrawal of this rejection is respectfully requested.

### **III. Concluding Remarks**

Applicant respectfully submits that claims 5 to 11, being dependent from claim 2 or 3 and incorporating all of the features thereof, are allowable for the above-described reasons and for the additional reason that the subject matter of those claims is neither disclosed in nor reasonably suggested by the applied art.

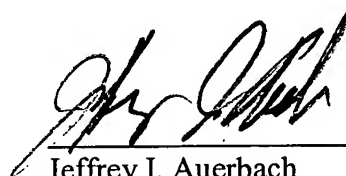
Having now responded to all of the Examiner's rejections, Applicant respectfully submits that the present application is in condition for Allowance, and earnestly solicits early notice of favorable action. The Examiner is respectfully invited to contact the undersigned with respect to any issues regarding this application.

Respectfully Submitted,

Date:

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